AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) A method for assessing the characteristic response of a medium to an excitation transient of predetermined duration which causes the medium to emit a series of signals over a period of time which is long relative to the duration of the excitation transient, wherein the signals are detected, the duration of each interval between successive signals is measured, and a relationship relating to the interval between the excitation transient and the emission of each signal to the interval between each signal and the preceding signal in the series is derived to represent the characteristic response.

2. (previously presented) A method for assessing the characteristic response of a medium to an excitation transient of predetermined duration which causes the medium to emit a series of signals over a period of time which is long relative to the duration of the excitation transient, wherein the signals are detected, the duration of each interval between successive signals is measured, and a relationship relating the interval between the excitation transient and the emission of each signal to the interval between each signal and the preceding signal in the series is derived to represent the characteristic response;

wherein the interval between the excitation transient and the emission of each signal is plotted against the interval between each signal and the preceding signal in the series, a curve is fitted to the plot, the position of a minimum value of the interval between successive signals as represented by the curve is determined, and the interval between the excitation transient and the minimum is determined to provide a measure of the characteristic response of the medium.

3. (previously presented) A method according to claim 1, wherein the excitation transient is an excitation pulse.

4. (previously presented) A method according to claim 1, wherein the characteristic response of the medium is assessed from a single excitation transient.

5. (previously presented) A method according to claim 1, wherein the characteristic response of the medium is assessed by averaging the characteristic response assessed in relation to a series of excitation transients.

6. (previously presented) A method according to claim 1, wherein the signals result from excitation of fluorophores by the excitation.

7. (currently amended) A method according to claim 1, wherein the signals result from energy transfer to one species from ~~the~~ another species excited by the excitation.

8. (previously presented) A method according to claim 1, wherein the timing of the signals is determined from a predetermined portion of each signal.

9. (previously presented) A method for assessing the characteristic response of a medium to an excitation transient of predetermined duration which causes the medium to emit a series of signals over a period of time which is long relative to the duration of the excitation transient, wherein the signals are detected, the duration of each interval between successive signals is measured, and a relationship relating the interval between the excitation transient and the emission of each signal to the interval between each signal and the preceding signal in the series is derived to represent the characteristic response;

wherein excitation is delivered to a plurality of samples of the medium from a single source, and signals from each sample are received by a single detector.

10. (original) A method according to claim 9, wherein each of the plurality of samples receives an excitation in turn, and signals from each of the samples are detected in turn.

11. (original) A method according to claim 9, wherein each of the plurality of samples receives an excitation simultaneously, and signals from all of the samples are detected in parallel.

12. (previously presented) A method according to claim 1, wherein a property of the excitation is used to normalise the detected signals.

13. (previously presented) A method according to claim 1, wherein a property of the excitation is recorded and subsequently deconvoluted from the detected signals.

14. (previously presented) A method according to claim 1, wherein a bleaching rate of a fluorophore is measured.

15. (currently amended) An apparatus for carrying out a method of assessing the characteristic response of a medium to an excitation transient of predetermined duration which causes the medium to emit a series of signals over a period of time which is long relative to the duration of the excitation transient, wherein the signals are detected, the duration of each interval between successive signals is measured, and a relationship relating to the interval between the excitation transient and the

emission of each signal to the interval between each signal and the preceding signal in the series is derived to represent the characteristic response;~~in accordance with claim 1,~~ the apparatus comprising:

means for detecting each of the series of signals,

means for measuring the duration of each interval between successive signals in the series,

means for plotting the interval between the excitation and the emission of each signal against the interval between each signal and the preceding signal in the series,

means for fitting a curve to the plot,

means for determining position of the minimum value of the interval between successive signals as represented by the curve, and

means for determining the interval between the excitation and the minimum to provide a measure of the characteristic response of the medium.

16-17. (canceled)

18. (previously presented) A method for assessing the characteristic response of a medium to an excitation transient of predetermined duration which causes the medium to emit a series of photons over a period of time which is long relative to the duration of the excitation transient, wherein the photons are detected, the duration of each interval between successive photons is measured, and a relationship relating the interval

between the excitation transient and the emission of each photon to the interval between each photon and the preceding photon in the series is derived to represent the characteristic response.